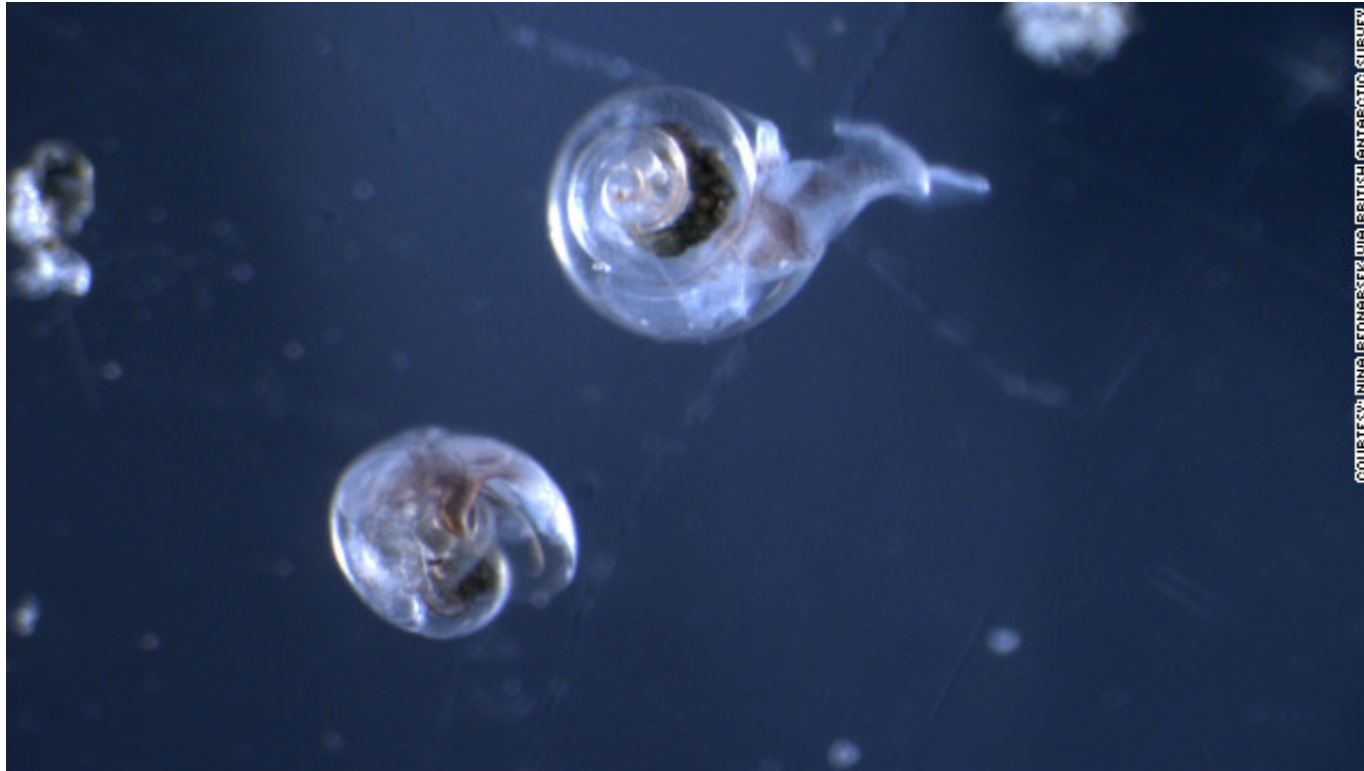


## Sea snails' shells dissolving in Earth's increasingly acidic oceans, study says



COURTESY: NINA BEDNARSKA VIA BRITISH ANTARCTIC SURVEY

The pteropod (marine snail) inhabit the top 200 m of oceanic waters. Their shells are made of aragonite that can dissolve rapidly.

**(CNN)** -- Until recently, the main threat to the lives of sea butterflies, tiny snails with winglike lobes that float in ocean currents, had been the fish and birds that rely on them as an important source of food.

But a new, less visible menace is emerging, scientists say, as the parts of the ocean that the snails inhabit become more acidic as a result of the burning of fossil fuels by humans.

[In a study published this month](#), a group of international scientists say they have discovered that the snails' shells are being severely eaten away by the rising acidity in an area of the Southern Ocean near Antarctica.

This is the first evidence of the changing chemistry of the oceans affecting living organisms in their natural environment, according to the scientists, whose paper was [published Sunday in the journal Nature Geoscience](#).

The finding has fueled concern because of sea butterflies' significant role in the marine food chain -- they are eaten by fish that regularly end up on people's dinner table, like salmon -- and in the process by which the ocean absorbs and releases carbon.

And it raises the question of what the other effects of more acidic oceans may be on sea life.

Sea butterflies, which are the size of a pinhead, live in the layer of ocean nearest to the surface. Below the depth of 1,000 meters, seawater becomes more corrosive to their shells, a point referred to as the "saturation horizon."

But the team of scientists says that during a research cruise in 2008, they found snails, also known as pteropods, whose shells had been dissolved much closer to the surface -- at levels as shallow as 200 meters.

The damage to the shells came from a combination of upwelling, where winds result in cold water being pushed up from deeper areas, and ocean acidification caused by carbon dioxide from human activity, according to Nina Bednarsek, the lead author of the study.

"This demonstrates how vulnerable pteropods are," said Bednarsek, who is now at the U.S. National Oceanic and Atmospheric Administration.

The amount of carbon dioxide in the earth's atmosphere is increasing, mainly because of the burning of fossil fuels and deforestation, [according to the World Meteorological Organization](#). That means that the planet's oceans, natural carbon storage facilities, are absorbing more and more of the gas, which makes them more acidic.

That in turn makes them increasingly hostile environments for the snails.

"Although the upwelling sites are natural phenomena that occur throughout the Southern Ocean, instances where they bring the 'saturation horizon' above 200m will become more frequent as ocean acidification intensifies in the coming years," said Geraint Tarling, another of the study's authors.

The corrosion of the sea butterflies shells doesn't necessarily kill them outright, according to Tarling, who works at the [British Antarctic Survey](#), a polar scientific research body.

"However it may increase their vulnerability to predation and infection consequently having an impact to other parts of the food web," he said.

Other institutions involved in the research included the University of East Anglia in Britain and the U.S. Woods Hole Oceanographic Institution.